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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,009	04/16/2004	Mohamad El-Batal	LSI.96US01 (03-2331)	9215

24319 7590 01/09/2009

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EXAMINER	
FRANKLIN, RICHARD B	

ART UNIT	PAPER NUMBER
2181	

MAIL DATE	DELIVERY MODE
01/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/826,009	EL-BATAL, MOHAMAD	
	Examiner	Art Unit	
	RICHARD FRANKLIN	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 8-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 6 and 8 – 18 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05 November 2008 has been entered.

Response to Arguments

3. Applicant's arguments, see pages 5 – 8, filed 05 November 2008, with respect to the rejection(s) of claim(s) 1, 9, and 14 under 35 USC 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of US Patent No. 6,915,380 (hereinafter Tanaka).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 – 6 and 8 – 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,724,539 (hereinafter Riggle) in view of US Patent No. 6,915,380 (hereinafter Tanaka).

As per claim 1, Riggle teaches a method comprising addressing a plurality of data strips from data to a chosen disk of a plurality of disk drives (Col 3 Lines 6 – 10, Col 6 Lines 28 – 31) such that the throughput of each of the plurality of disk drives is maximized (Col 5 Lines 26 – 31); forming a data stream comprising data strips (Figure 1 Item 90), the data stream having a first throughput (Col 5 Lines 5 – 8 and 13 – 17); creating a plurality of parallel data streams (Figure 1 Item 110), each of the plurality of parallel data streams having an equal second throughput (Col 5 Lines 5 – 8 and 13 – 17, Col 7 Lines 16 – 19), the second throughput being smaller than the first throughput (Col 5 Lines 5 – 8 and 13 – 17); directing the plurality of parallel data streams to a corresponding plurality of the plurality of disk drives (Figure 1 Item 150, Col 6 Lines 28 – 31) such that each data strip in the plurality of data strips is transmitted to the chosen disk of the plurality of disk drives (Col 6 Lines 31 – 34); and storing each of the data strips on the each of plurality of disk drives (Col 6 Lines 31 – 34).

Riggle does not teach using a crossbar switch to direct the data streams.

However, Tanaka teaches using a crossbar switch (Tanaka; Figure 1 Item "SW1", Figure 2 Item "XSW", Col 6 Lines 35 – 46) to direct data streams in a data storage system which divides high bandwidth input stream into equal lower bandwidth output streams (Tanaka; Col 9 Lines 13 – 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Riggle to include the crossbar switch because doing so allows for throughput between the disk adapter and the disk array to be improved (Tanaka; Col 9 Lines 37 – 38).

As per claims 2, 10, and 15, Riggle also teaches wherein the plurality of parallel data streams is equal to the first throughput divided by the second throughput (Col 5 Lines 5 – 8 and Lines 13 – 17).

As per claims 3, 11, and 16, Riggle also teaches wherein the number of the plurality of parallel data streams is 2 (Figure 1 Item 150 [DDK could be any number, including 2]).

As per claims 4, 12, and 17, Riggle also teaches wherein the number of the plurality of parallel data streams is 4 (Figure 1 Item 150 [DDK could be any number, including 4], Col 11 Lines 50 – 54).

As per claims 5, 13, and 18, Riggle also teaches wherein at least one of the data strips comprises parity information (Col 6 Lines 52 – 65).

As per claim 6, Riggle also teaches wherein the creating a plurality of parallel data streams is performed by a first-in-first-out (FIFO) buffer (Figure 1 Item 120).

As per claim 8, Riggle also teaches reading each of the data strips from the plurality of disk drives (Col 2 Line 66 – Col 3 Line 5); and transmitting each of the data strips from the plurality of disk drives in the plurality of parallel data streams (Col 2 Line 66 – Col 3 Line 5, Col 6 Line 66 – Col 7 Line 3).

As per claims 9 and 14, Riggle teaches a system comprising a plurality of disk drives (Figure 1 Item 150) each having a communication channel (Figure 1 Item 140) capable of communicating at a first throughput (Col 5 Lines 5 – 8 and 13 – 17); a controller (Figure 1 Item 40) adapted to address a plurality of data strips from the data to a chosen disk of the plurality of disk drives (Col 3 Lines 6 – 10, Col 6 Lines 28 – 31) such that the throughput of each of the plurality of disk drives is maximized (Col 5 Lines 26 – 31), and form a data stream comprising the data strips, the data stream having a second throughput (Col 5 Lines 5 – 8 and 13 – 17); a buffered switch (Figure 1 Item 50) in communication with the controller adapted to create a plurality of parallel data streams (Col 6 Lines 28 – 31), each of the plurality of parallel data streams having the second throughput, the first throughput being smaller than the second throughput (Col 5

Lines 5 – 8 and 13 – 17); a switch (Figure 1 Item 100) in communication with the buffered switch and adapted to direct the plurality of parallel data streams to the plurality of disk drives such that each of the separate data strips are transmitted to each of the plurality of disk drives to which the separate data strips are addressed (Col 6 Lines 31 – 40); and wherein the plurality of disk drives are adapted to receive the plurality of parallel data streams and store the data strips on the disk drives (Col 6 Lines 31 – 34).

Riggle does not teach wherein the switch is a crossbar switch used to direct the data streams.

However, Tanaka teaches using a crossbar switch (Tanaka; Figure 1 Item "SW1", Figure 2 Item "XSW", Col 6 Lines 35 – 46) to direct data streams in a data storage system which divides high bandwidth input stream into equal lower bandwidth output streams (Tanaka; Col 9 Lines 13 – 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teachings of Riggle to include the crossbar switch because doing so allows for throughput between the disk adapter and the disk array to be improved (Tanaka; Col 9 Lines 37 – 38).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD FRANKLIN whose telephone number is (571)272-0669. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alford Kindred can be reached on (571) 272-4037. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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